

REMARKS

The foregoing Amendment is filed in response to the official action dated December 14, 2004. Reconsideration is respectfully requested.

The status of the claims is as follows:

Claims 1-30 are currently pending.

Claims 1-30 stand rejected.

Claims 2, 4, 10-13, 16, and 27-30 are objected to.

Claims 1-4, 9-11, 14-16, 23, 27, and 30 have been amended.

The Examiner has rejected claims 1-9, 11-21, 23-26, and 30 under 35 U.S.C. 102(e) as being anticipated by Williams *et al.* (USP 6,199,986). The Applicants have amended claim 1 to recite a process for noise reduction from noisy data representing an artifact at sample points in two dimensional space of a wafer specimen. The Applicants have also amended base claim 11 to recite a process for generating a noise correcting matrix for a wafer measurement apparatus. In addition, the Applicants have amended base claim 14 to recite an apparatus for noise reduction from noisy data representing an artifact at sample points in two dimensional space of a wafer specimen. In addition, the Applicants have amended base claim 23 to recite apparatus for generating a noise correcting matrix for a wafer measurement

apparatus. The official action indicates on page 7, paragraph 9, that the Williams reference does not disclose determining wafer shape. Accordingly, it is respectfully submitted that the Williams reference does not anticipate claims 1, 11, 14, and 23, as amended, and therefore the rejections of claims 1, 11, 14, and 23 and the claims dependent therefrom are unwarranted and should be withdrawn.

The Examiner has rejected claims 10 and 22 under 35 U.S.C. 103(a) as being unpatentable over Williams *et al.* as applied to claims 9 and 21 above. The Applicants respectfully submit, however, that the official action fails to establish a *prima facie* case of obviousness, and therefore the rejections of claims 10 and 22 under section 103 of the Patent Laws are unwarranted and should be withdrawn.

It is well settled that for *prima facie* obviousness to exist, the prior art must suggest the benefits of modifying a reference, or external factors such as the changing state of the art must provide the motivation to one of ordinary skill in the art to make the modification. The Applicants respectfully submit that the Williams reference does not teach or suggest the benefits of modifying the reference, as suggested in the official action, nor do external factors such as the changing state of the art provide

any motivation to one of ordinary skill to make the suggested modification.

For example, the Williams reference focuses on the problem of providing a robust and real time wavefront sensing technique for the eye (see column 2, lines 61-63, of Williams et al.). In contrast, the Applicants address the problem of providing an analytical method for removing the noise content from metrology measurements of wafer specimens that accommodates the variability of data points (see page 3, lines 7-9, of the application). The Applicants respectfully submit that neither the teaching of the Williams reference itself, nor the changing state of the art, provide any motivation to one of ordinary skill in the art to modify the teachings relating to the wavefront sensor for ophthalmic applications, as disclosed by Williams et al., to obtain the Applicants' technique for removing the noise content from wafer metrology measurements. In fact, Williams et al. suggest that their invention is more closely related to the field of astronomy (see, e.g., column 1, lines 8-22, of Williams et al.), which clearly has no relation to the field of wafer metrology.

Because one of ordinary skill in the art would have no motivation to modify the Williams reference, as suggested in the

official action, a *prima facie* case of obviousness has not been established. Accordingly, it is respectfully submitted that the rejections of claims 10 and 22 under 35 U.S.C. 103 are unwarranted and should be withdrawn.

The Examiner has rejected claims 27-29 under 35 U.S.C. 103(a) as being unpatentable over Williams *et al.* in view of Evans *et al.* (USP 5,739,906). The Applicants respectfully submit, however, that the official action again fails to establish a *prima facie* case of obviousness, and therefore the rejections of claims 27-29 under section 103 of the Patent Laws are unwarranted and should be withdrawn.

As explained above, the Williams reference focuses on the problem of providing an improved wavefront sensing technique for the eye (see column 2, lines 61-63, of Williams *et al.*). In contrast, the Evans reference addresses the problem of determining thickness and thickness variations in windows and silicon wafers (see column 1, lines 7-12, of Evans *et al.*). The Applicants respectfully submit that neither the teachings of the Williams and Evans references themselves, nor the changing state of the art, provide any motivation to one of ordinary skill in the art to combine the teachings relating to a wavefront sensor for ophthalmic applications, as disclosed by Williams *et al.*, with the

teachings relating to methods for determining wafer thickness and thickness variations, as disclosed by Evans *et al.*, to obtain the Applicants' technique for removing the noise content from wafer metrology measurements. As pointed out above, Williams *et al.* suggest that their invention is more closely related to the field of astronomy (see, e.g., column 1, lines 8-22, of Williams *et al.*), which clearly has no relation to the field of wafer metrology.

Because one of ordinary skill in the art would have no motivation to combine the teachings of the Williams and Evans references, as suggested in the official action, a *prima facie* case of obviousness has not been established. Accordingly, it is respectfully submitted that the rejections of claims 27-29 under 35 U.S.C. 103 are unwarranted and should be withdrawn.

In view of the foregoing, it is respectfully submitted that the present application is placed in a condition for allowance. Early and favorable action is respectfully requested.

The Examiner is encouraged to telephone the undersigned Attorney to discuss any matter that would expedite allowance of

Application No. 09/914,456

Filed: August 28, 2001


TC Art Unit: 2623

Confirmation No.: 5339

the present application.

Respectfully submitted,

JAYDEEP SINHA, ET AL.

By 
Richard E. Gamache
Registration No. 39,196
Attorney for Applicants

WEINGARTEN, SCHURGIN,
GAGNEBIN & LEOVICI LLP
Ten Post Office Square
Boston, MA 02109
Telephone: (617) 542-2290
Telecopier: (617) 451-0313

REG/pjd
Enclosure
318582

AMENDMENT TO THE DRAWINGS

Please replace sheet 2 (Figs. 2-3) with replacement sheet 2 included herewith.

Figs. 2-3 have not been amended. Replacement sheet 2 (Figs. 2-3) is included herewith to provide the Office with a clearer depiction of the respective drawing figures.